CLAIMS ~~SEQUENCE LISTING~~

We claim:

1. A method for generating a secondary library of scaffold protein variants comprising:
   a) providing a primary library comprising a rank-ordered list of scaffold protein primary variant sequences;
   b) generating a list of primary variant positions in said primary library;
   c) combining a plurality of said primary variant positions to generate a secondary library of secondary sequences.

2. A method for generating a secondary library of scaffold protein variants comprising:
   a) providing a primary library comprising a rank-ordered list of scaffold protein primary variant sequences;
   b) generating a probability distribution of amino acid residues in a plurality of variant positions;
   c) combining a plurality of said amino acid residues to generate a secondary library of secondary sequences.

3. A method according to claim 1 further comprising synthesizing a plurality of said secondary sequences.

4. A method according to claim 2 wherein said synthesizing is done by multiple PCR with pooled oligonucleotides.

5. A method according to claim 4 wherein said pooled oligonucleotides are added in equimolar amounts.

6. A method according to claim 4 wherein said pooled oligonucleotides are added in amounts that correspond to the frequency of the mutation.

7. A composition comprising a plurality of secondary variant proteins comprising a subset of said secondary library.

8. A composition comprising a plurality of nucleic acids encoding a plurality of secondary variant proteins comprising a subset of said secondary library.

9. A method for generating a secondary library of scaffold protein variants comprising:
   a) providing a first library rank-ordered list of scaffold protein primary variants;
   b) generating a probability distribution of amino acid residues in a plurality of variant positions;

c) synthesizing a plurality of scaffold protein secondary variants comprising a plurality of said amino acid residues to form a secondary library;

wherein at least one of said secondary variants is different from said primary variants.